Testimony of Thomas Emero
Before the Natural Resources Committee
In Opposition to Proposed Amendment to LD 141
"An Act to Ensure Proper Disposal of Debris and Protection of the Environment"
March 7, 2006

Senator Cowger, Representative Koffman, and distinguished members of the Natural Resources Committee, I am Tom Emero, General Counsel and Director of Renewable Energy Projects for GenPower. I am here to provide testimony on LD 141. We believe that scientific decisions like this as to what and how much of any given material can be safely used as fuel is a decision best left to the experts you have hired, the Maine Department of Environmental Protection. Therefore, I am testifying in opposition to the proposed amendment to LD 141.

WHO IS GENPOWER:

GenPower is a company that specializes in the development of electrical generation plants throughout the United States. One of our projects is GenPower – Athens which currently has a pending air license application before the Maine DEP for a proposed 42 MW project to be located in Athens, Maine. Unlike any other biomass plant in Maine, this project has been designed from the ground-up to be able to burn up to 100% construction and demolition derived wood fuel (C&D Wood Fuel) as its primary fuel and still meet, and in fact be far below, any applicable air and fugitive emission standards.

In the package I have handed out to you is a packet of 12 slides. Most are there for additional information but I will ask you to look at a couple of specific pages during my talk. I have also enclosed a copy of a talk I recently gave at the Town of Athens for additional information.

BRIEF HISTORY AS TO HOW MAINE GOT HERE:

Over 2 years ago, well before there were any proposed new solid waste regulations regarding the burning of C&D Wood Fuel, GenPower was planning and designing the next generation of biomass power plants. Several senior people at

GenPower have been in this business since the mid 80's. We have designed, built and operated biomass plants including Chester completed in 1986, as well as Livermore Falls, Ashland and Cadillac Michigan. Through all of this experience we have learned how to design, build and operate environmentally safe biomass plants. *(Slides #1 to 4 have further background on GenPower and our proposed Athens project.)*

At its core, the biomass industry is a recycling industry. We recycle previously worthless forest residue, sawmill residue and biomass in construction residue. But the history of the business also makes clear that new and more creative ways to use wood fiber (biomass) are always being discovered. Since the first biomass power plants began operation in the early to mid 80's, bark, a primary fuel then has changed from a waste to a product that is now mostly too valuable to burn and instead it is primarily used as landscape mulch. Products such as particleboard and orientated strand board (OSB) have been developed to utilize lower grades of forest products. The lower quality wood that used to be burned in the existing Maine biomass power plants is now being used to make laminated veneer lumber for everything from 2x4's to floor trusses and beams. That forest residue is the fuel that the current biomass plants in Maine were designed to burn, but now that fuel is only available in much lower quantities and at much higher prices.

In order to compete in the energy markets today, biomass plants must burn an ever-lower grade of fuel and fuel needs are now being satisfied in part by C&D Wood Fuel. We designed GenPower Athens to burn up to 100% C&D Wood Fuel or 100% forest residue, or any amounts in between. We did this because it gives us a plant that can safely burn the lowest quality biomass wood fuel that is currently on the market. And we do it while also setting new standards for both air and dust emissions far in excess of the State of Maine or Federal requirements.

Establishing an arbitrary limit on the percentage of C&D Wood Fuel to be burned at a state of the art biomass power plant, which would also be the same limit as an existing decades old facility with far less pollution control equipment would be wrong from both an environmental protection perspective as well as from a public policy perspective. Existing biomass plants were designed to burn one type of fuel with very

little flexibility to burn fuels such as C&D Wood Fuel. This technological limitation is exactly why the DEP's Solid Waste Division has proposed new rules to govern the composition of C&D Wood Fuel. The GenPower plant however is designed to safely burn today's economically available C&D Wood Fuels due to the fact that we propose to use all of the best available control technology such as our fluidized bed boilers, baghouses, scrubbers and carbon injection systems. *(Slides #5 to 8 contain a summary of that technology.)*

While the 50% limitation proposed by this amendment to LD 141 might be appropriate for older-style plants with much less in the way of pollution control technology, it makes absolutely no scientific sense to limit a state of the art plant to similar restrictions. *(Please see slides #9 through 12 for a comparison of GenPower's emissions to others.)*

The following facts about the GenPower-Athens project demonstrate that a 50% cap on construction and demolition debris derived wood fuel should not be imposed on projects like GenPower-Athens. The project fully addresses and responds to all the concerns raised by opposition to the use of C&D Wood Fuel as a substitute fuel in combustion.

- Emissions for the GenPower-Athens plant will be significantly below the most stringent air emissions established by Maine DEP and the U.S. EPA and the Maine Department of Health and Human Services. The standards and guidelines set by the state and federal agencies were established to protect public health and the environment with an adequate margin of safety.

- Regarding ash quality and quantity, whether a plant burns 50% C&D Wood Fuel or 100%, all of the ash from that plant must be handled and disposed of in the exact same way, in approximately the same quantity to the exact same lined landfills in accordance with all applicable DEP rules. Therefore, there is no difference in environmental impact from the ash.

- Unlike existing facilities, many of which have experienced problems caused by the inability to contain dust and control fires due to open fuel yards, conveyors and manual handling of the C&D Wood Fuel, GenPower-Athens has pipe conveyors and a totally enclosed and automated fuel yard which will bring a new standard of safety and low emissions to biomass fuel handling in the U.S.

As I previously discussed, the economics of this business is such that there is a trend toward using the lowest cost fuels which today means C&D Wood Fuel. There is a limited amount of C&D Wood Fuel that is, and will be, economically available to Maine businesses. This amount has and will continue to be burned each year in Maine regardless of whether new biomass power plants come on line or not or whether the available amount is divided among 1, 2 or 3 or more facilities. Therefore, there are two possible results for GenPower Athens and the State of Maine if the proposed amendment to LD 141 is passed. The first is that GenPower Athens is not built because the 100 million dollar price tag for a plant with this level of pollution controls cannot afford to pay the current or anticipated cost of forest residue for 50% of its fuel. If GenPower Athens is not built there would be up to 330,000 tons per year of C&D Wood Fuel that would then be available to be burned at other existing facilities that were not designed for such material. The second possible result under the proposed amendment to LD 141 is that GenPower Athens is built, but is limited to 50% C&D Wood Fuel, leaving 165,000 tons per year to be burned at older plants without fuel handling and air pollution controls designed for this fuel.

Therefore, the question you must answer for the citizens of the State of Maine in deciding whether or not to pass LD 141 is: Is it better to have this fuel burned in a facility specifically designed to safely burn it, or is it better to burn it across 2, 3 or 4 plants which were not designed to do so? Which alternative will result in the least pollution to the air, land and surface waters of Maine?

Finally, I respectfully suggest that this amendment to LD 141 is premature and, as Maine DEP has stated publicly, a 50% limit on the use of C&D Wood Fuel is only based upon policy and not upon any science. The Department is currently in the process of a

proposed rulemaking revising the beneficial reuse regulations impacting the use of C&D Wood Fuel, and has undertaken extensive research and thoroughly briefed the BEP on these issues. I urge the Committee to reject this amendment and to let that rulemaking process go forward unfettered by legislative activity on the subject.

I thank you for the opportunity to testify here today and would be happy to answer any of your questions about the GenPower-Athens project, C&D Wood Fuel or anything else.

GENPOWER

GenPower, LLC

- Developers of Biomass, Natural Gas, Coal Projects
  - 40 to 600MW projects in ME, MS, AR, WV
  - Westbrook 600MW Combined Cycle Project
- Owner's Engineer for PSNH Schiller project – 50 MW biomass
- Extensive staff biomass experience
  - Developed, designed, built and operated biomass plants in:
    - Chester, ME
    - Ashland, ME
    - Livermore Falls, ME
    - Cadillac, MI

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Biomass Energy Facility

- 42MW gross output
- On site of former Athens plant
- Two fluidized bed boilers
- One turbine-generator set
- Two primary buildings: up to 90 ft tall
- One stack approximately 160 ft
- Operates 24X7 approx 330 days per year

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Fuel

- Designed, permitted and built to use 100% virgin wood or 100% C&D derived wood fuel or any combination in between
- 330 to 430 thousand tons per year, depending on fuel type
- Fuel delivered weekdays 6AM to 6PM (approx) and 7AM to 1 PM Saturdays

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What is C&DD and C&D Wood Fuel?

- Construction & Demolition Debris (C&DD)
  - Wood (about 40%)
  - Aggregate
  - Metals
  - Shingles
  - Soil
  - Sheetrock
  - Plastic, etc

- C&D Wood Fuel = The wood fraction extracted from C&DD
- C&D Wood Fuel Isn't:
  - MSW (garbage), asbestos, sludge, liquids, or significant quantities of plastics, rubber, metal, etc.

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Why This Project Is Different

(from Boralex and all other biomass plants in Maine)

- Unique combination of air pollution control technologies:
  - Fluidized bed boilers
  - Selective non-catalytic reduction
  - Dry scrubber
  - Carbon injection
  - Baghouse/fabric filtration
- Enclosed fuel handling and storage technologies to control fugitive emissions

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Pollution Control Technologies

- *Fluid bed technology*
  - Heated bed of sand-like material suspended (fluidized) within a rising column of air to burn solid fuel
    - Increases combustion efficiency thereby significantly reducing NOx, VOC and dioxin emissions
- *Selective Non Catalytic Reduction*
  - NOx control

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Pollution Control Technologies

- *Limestone injection and dry scrubber*
  - Controls Sulfur Dioxide/HCl
- *Activated Carbon Injection*
  - Binds mercury/dioxins and other particulates and metals in the exhaust
- *Fabric filtration*
  - Controls metals/dioxins and other particulates in the exhaust and undertakes final reduction of acid gasses

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Fugitive Emissions Control

- Most equipment totally enclosed
- Automated enclosed wood yard
- Covered conveyors
- Inbound/Outbound tractor trailers covered

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Air Emissions Comparison

	Current Licensed Levels for Livermore Falls and Stratton burning 50% C&D Wood Fuel	Proposed Licensed Levels Athens Biomass/ C&D Facility burning 100% C&D Wood Fuel
Pollutant	**(lb/MMBtu)**	**(lb/MMBtu)**
NOx *(nitrous oxide)*	0.15 – 0.24	0.075
PM *(particulate matter)*	0.02 – 0.03	0.01
CO *(carbon monoxide)*	0.45 – 0.60	0.08
VOC *(volatile organic compounds)*	0.016 – 0.07	0.005
SO_2 *(sulphur dioxide)*	0.05 – 0.06	0.02

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Air Emissions Comparison
(cont.)

	Current Licensed Levels for Livermore Falls and Stratton burning 50% C&D Wood Fuel	Proposed Licensed Levels Athens Biomass/ C&D Facility burning 100% C&D Wood Fuel
Pollutant	**(lb/MMBtu)**	**(lb/MMBtu)**
NH_3 *(ammonia)*	0.01 – 0.03	0.01
Total Metals	Not regulated	0.0003
HCl *(hydrogen chloride)*	Not regulated	0.02
Hg *(mercury)*	Not regulated	0.000003
Pb *(lead)*	0.00012 – 0.00022	0.00003

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GenPower Maximum Impact and ME Ambient Air Guidelines for Toxics

(μg/m3)

Pollutant	Maine AAG	GenPower Max Impact
Arsenic	0.002	0.0000568
Antimony	1.0	0.0000246
Beryllium	0.004	0.000017
Cadmium	0.006	0.000111
Chromium	0.0008	0.000127
Copper	0.5	0.00316
Lead	None established	0.00226
Mercury	0.03	0.000555
Nickel	0.04	0.000170
Selenium	2.0	0.000279

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GenPower Athens and ME Ambient Air Quality Standards

Pollutant	Averaging Period	GenPower Maximum Impact*	Cent. ME Rural Background Value*	Total Impact*	MAAQS*
SO_2	3-Hour	4.26	24	28.26	1150
	24-Hour	4.98	13	17.98	230
	Annual	1.21	5	6.21	57
PM_{10}	24-Hour	2.77	45	47.77	150
	Annual	0.67	14	14.67	40
NO_2	Annual	5.04	11	16.04	100
CO	1-Hour	60.22	4,568	4,628.22	40000
	8-Hour	39.43	2,284	2,323.43	10000

**All units in μg/m³*